IN THE CLAIMS:

Please amend the claims as follows:

Claim 1 (Currently Amended): A music searching apparatus, comprising:

a storing device which stores first chord progression music data for a plurality of music

pieces representing chronological changes in chords in the music pieces;

a data producing device which produces second chord progression music data

representing chronological changes in at least a part of chords in a music piece to be searched;

a ~~comparator~~ calculator which ~~compares~~ calculates a correlation coefficient between said

second chord progression music data ~~with~~ and said first chord progression music data for said

plurality of music pieces stored in said storing device on the basis of an amount of change in a

root of a chord at each chord transition and an attribute indicating a type of chord after each

chord transition[[,]]~~thereby calculating a degree of similarity for each of said plurality of music~~

~~pieces~~; and

an output device which produces a search output indicating at least one music piece of

said plurality of music pieces in accordance with ~~a result of the similarity degree calculation~~ the

correlation coefficient calculated for each of said plurality of music pieces by said ~~comparator~~

calculator.

Claim 2 (Currently Amended): The music searching apparatus according to claim 1,

wherein

said ~~comparator~~ <u>calculator</u> sequentially changes a position to start ~~comparison~~ <u>calculation</u> for the first chord progression music data for said plurality of music pieces stored in said storing device so as to ~~compare~~ <u>calculate the correlation coefficient between</u> the first chord progression music data for said plurality of music pieces and said second chord progression music data.

Claims 3-5 (Cancelled).

Claim 6 (Currently Amended): <u>A</u> ~~The~~ music searching apparatus ~~according to claim 1,~~ ~~further~~ comprising<u>:</u>

<u>a storing device which stores first chord progression music data for a plurality of music pieces representing chronological changes in chords in the music pieces;</u>

<u>a data producing device which produces second chord progression music data representing chronological changes in at least a part of chords in a music piece to be searched;</u>

<u>a comparator which compares said second chord progression music data with said first chord progression music data for said plurality of music pieces stored in said storing device on the basis of an amount of change in a root of a chord at each chord transition and an attribute indicating a type of chord after each chord transition, thereby calculating a degree of similarity for each of said plurality of music pieces;</u>

<u>an output device which produces a search output indicating at least one music piece of said plurality of music pieces in accordance with a result of the similarity degree calculation for each of said plurality of music pieces by said comparator; and</u>

a data making portion which makes first and second chord candidates indicating in

chronological order a chord for each chord transition of a music piece in accordance with an

input audio signal representing the music piece, said second chord progression music data and

said first chord progression music data for said plurality of music pieces stored in said storing

device each having the first and second chord candidates, ~~and~~

wherein said comparator compares the first and second chord candidates for said second

chord progression music data with first and second chord candidates for said first chord

progression music data for the plurality of music pieces stored in said storing device.

Claim 7 (Previously Presented): The music searching apparatus according to claim 6,

wherein said data making portion includes:

a frequency converter which samples an input audio signal representing a music piece at

predetermined time intervals for each of said plurality of music pieces, and converts the sampled

audio signal into a frequency signal representing a level for each frequency component;

a component extractor which extracts a frequency component corresponding to each

tempered tone from the frequency signal obtained by said frequency converter at said

predetermined time intervals;

a chord candidate detector which detects two chords each formed by a set of three

frequency components as said first and second chord candidates, said three frequency

components being higher in level than the other frequency components of the extracted

frequency components; and

a smoothing device which cancels a candidate indicating a noise component in trains of said first and second chord candidates repeatedly detected by said chord candidate detector, so that a same chord is successively arranged in at least two chord candidates including the canceled portion, to produce said first chord progression music data to be stored in said storing device.

Claim 8 (Previously Presented): The music searching apparatus according to claim 6, wherein said data producing device comprises:

a frequency converter which samples an input audio signal representing a music piece at predetermined time intervals, and converts the sampled audio signal into a frequency signal representing a level for each frequency component;

a component extractor which extracts a frequency component corresponding to each tempered tone from the frequency signal obtained by said frequency converter at said predetermined time intervals;

a chord candidate detector which detects a predetermined number of sets of two chords as said first and second candidates each formed by a set of three frequency components, said three frequency components being higher in level than the other frequency components of the extracted frequency components; and

a smoothing device which cancels a candidate indicating a noise component in trains of said first and second chord candidates repeatedly detected by said chord candidate detector, so that a same chord is successively arranged in at least two chord candidates including the canceled portion, to produce said second chord progression music data.

Claim 9 (Currently Amended): A music searching method, comprising the steps of:

storing first chord progression music data for a plurality of music pieces representing chronological changes in chords in the music pieces;

producing second chord progression music data representing chronological changes in at least a part of chords in a music piece to be searched;

~~comparing~~ calculating a correlation coefficient between said second chord progression music data ~~with~~ and said first chord progression music data for said plurality of music pieces stored in said storing step on the basis of an amount of change in a root of a chord in a chord transition and an attribute indicating a type of chord after each chord transition[[,]]~~thereby calculating a degree of similarity for each of said plurality of music pieces~~; and

producing a search output indicating at least one music piece of said plurality of music pieces in accordance with ~~a result of the similarity degree calculation~~ the correlation coefficient calculated for each of said plurality of music pieces by the ~~comparing~~ calculating step.

Claim 10 (Currently Amended): A computer program ~~product~~ embedded on a computer readable medium comprising a program for searching a music piece, said searching comprising the steps of:

storing first chord progression music data for a plurality of music pieces representing chronological changes in chords in the music pieces;

producing second chord progression music data representing chronological changes in at least a part of chords in a music piece to be searched; ·

~~comparing~~ calculating a correlation coefficient between said second chord progression

music data with said first chord progression music data for the plurality of music pieces stored in

said storing step on the basis of an amount of change in a root of a chord in a chord transition

and an attribute indicating a type of chord after each chord transition[[,]]~~thereby calculating a~~

~~degree of similarity for each of said plurality of music pieces~~; and

producing a search output indicating at least one music piece of said plurality of music

pieces in accordance with ~~a result of the similarity degree calculation~~ the correlation coefficient

calculated for each of said plurality of music pieces by said ~~comparing~~ calculating step.

Claim 11 (Currently Amended): A ~~The~~ music searching apparatus ~~according to claim 1,~~

~~wherein~~ comprising:

a storing device which stores first chord progression music data for a plurality of music

pieces representing chronological changes in chords in the music pieces;

a data producing device which produces a second chord progression music data

representing chronological changes in at least a part of chords in a music piece to be searched;

a comparator which compares said second chord progression music data with said first

chord progression music data for said plurality of music pieces stored in said storing device on

the basis of an amount of change in a root of a chord at each chord transition and an attribute

indicating a type of chord after each chord transition, thereby calculating a degree of similarity

for each of said plurality of music pieces; and

an output device which produces a search output indicating at least one music piece of said plurality of music pieces in accordance with a result of the similarity degree calculation for each of said plurality of music pieces by said comparator,

wherein said comparator makes a first chord differential value train indicating in chronological order the change amount in a root chord for each chord transition and a first attribute train indicating in chronological order the attribute for each chord transition, in accordance with the first chord progression music data for said plurality of music pieces, makes a second chord differential value train indicating in chronological order the change amount in a root chord for each chord transition and a second attribute train indicating in chronological order the attribute for each chord transition, in accordance with the second chord progression music data, compares the second chord differential value train with the first chord differential value train, and compares the second attribute train with the first attribute train, in order to calculate the similarity degree for each of said plurality of music pieces.

Claim 12 (Previously Presented): The music searching apparatus according to claim 11, wherein said comparator compares an n-th (wherein n is an integer larger than zero) chord differential value and chord differential values arranged before and after the n-th chord differential value of the second chord differential value train with an n-th chord differential value of the first chord differential value train, and compares an n-th attribute and attributes arranged before and after the n-th attribute of the second attribute train with an n-th attribute of the first attribute train, thereby detecting higher similarity.

Claim 13 (Previously Presented): The music searching apparatus according to claim 11, wherein when a chord after one chord transition in said second chord progression music data, and a chord after one chord transition in said first chord progression music data stored in said storing device are related with each other based on the relative key expression in the music theory by comparing the second chord differential value train with the first chord differential value train, and by comparing the second attribute train with the first attribute train, the comparator regards both the chords after the one transitions as the same chord.